PATENT ABSTRACTS OF JAPAN

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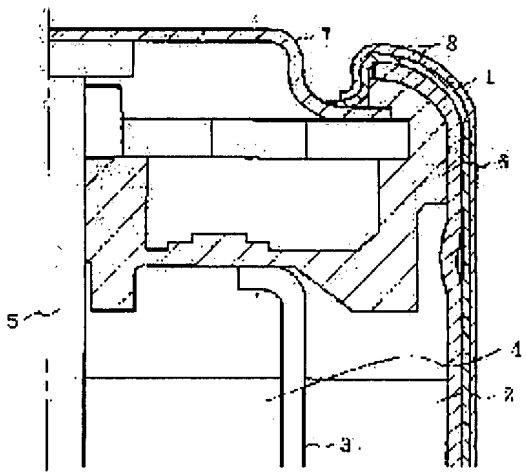
(54) ALKALINE CELL

(57)Abstract:

PROBLEM TO BE SOLVED: To improve reliability of outer package of an alkaline cell clad in a heat contraction member.

SOLUTION: The alkaline cell seals an opening part of a metal cell case 1 containing an electricity-generating element by a hat-shaped metal sealing plate 7 also serving as a negative terminal through an insulating gasket 6. By doubly packaging the metal cell case 1 with heat contraction material 8, damages to outer packages due to vibration of cells during transport or due to coil spring terminal of an equipment the cell is used for are avoided, and as a result, reliability of the outer package is enhanced preventing generation of an outside short circuit between a positive electrode and a negative electrode.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the amelioration of an alkaline battery which carried out sheathing by heat shrink nature members, such as a shrink label or a shrink tube.
[0002]
[Description of the Prior Art] Conventionally, in the alkaline battery, in order to enlarge the diameter of a metal cell case, the coat insulation of the metal cell case was carried out by the shrink label and shrink tube which simplifying sheathing structure is performed, for example, vapor-deposited the metal, and formed the pattern etc. A shrink label is pasted up on the side face of the cell case which serves as the positive-electrode terminal which contained the generation-of-electrical-energy element as such a cell with a binder, and the label sheathing cell to which the heat shrink of the flash part of the upper and lower sides was carried out, the tube sheathing cell which the cell was contained [cell] in the cylinder-like heat shrink nature tube, and carried out heating contraction of the tube are in it. As for these cells, the heat shrink nature member consists of one layer.
[0003] An example of this alkaline battery is shown in drawing 5 . In drawing 5 , 1 expresses the metal cell case which served as the positive-electrode terminal. the positive electrode with which the cell case 1 made the manganese dioxide the subject to the interior -- it is loaded with a mixture 2, a separator 3, and the gel zinc negative electrode 4, and the metal obturation plate 7 which serves as the negative-electrode terminal which combined the negative-electrode current collection rod 5 and the insulating gasket 6 obturates opening of a cell case. In addition, the current collection rod 5 is joined to the metal obturation plate by spot welding. 8 is a label made of wrap resin, and the cell case 1 covers the cell case with the heat shrink. The soffit was stuck to the periphery section of the lock out side of a case 1, and the upper bed was stuck so that the opening end face of the case 1 closed in the periphery section of a gasket 6 might be covered, and it is further extended to the metal obturation plate 7 side.
[0004]
[Problem(s) to be Solved by the Invention] In the dry cell by which sheathing was carried out to one layer by the above heat shrink members, it is friction by the oscillation under migration of a cell etc., and a crack may produce opening of a case on a wrap sheathing label contraction section outside surface, or a label and a tube may separate. When the contraction section of a wrap sheathing member projects the opening end face of a positive-electrode case from the negative-electrode obturation plate especially, in case a cell is taken in and out to a cell activity instrument, it is easy to receive breakage that a tube and a label separate or go out with an instrument side coiled spring-like terminal etc. In such a case, since both the obturation caulking parts and negative-electrode obturation plates of a positive-electrode case are metal, the coiled spring-like terminal by the side of an instrument contacts a negative-electrode obturation plate and positive-electrode case opening, produces an external short circuit between forward negative electrodes, and causes a burst and a liquid spill of an electrode in many cases. At such a point, dependability will be inferior in the alkaline cell which carried out sheathing by heat shrink members, such as a shrink label or a shrink tube, compared with a metallic-sheath cell.
[0005] This invention coped with the above-mentioned situation, was made, and aims at raising the dependability of sheathing of an alkaline cell which carried out sheathing by the heat shrink member.
[0006]
[Means for Solving the Problem] This invention is characterized by carrying out sheathing of the metal cell case to the duplex by the heat shrink nature member in the alkaline battery which obturated opening of the metal cell case which contains a generation-of-electrical-energy element with the metal obturation plate of the hat form which serves as a negative-electrode terminal through an insulating gasket.
[0007] Since sheathing of the alkaline battery of this invention is carried out to the duplex by the heat shrink member, the inconvenience of it that a crack will produce opening of a case on a wrap sheathing label

contraction section outside surface, or, for example, a label and a tube will separate in friction by the oscillation under migration of a cell is lost. Moreover, in case a cell is taken in and out to a cell activity instrument, the tube and label of a cell separating with the coiled spring-like terminal by the side of an instrument etc. like before, or producing breakage on a piece etc. is lost, consequently external short generating between the forward negative electrodes of a cell can be prevented.

[0008]

[Embodiment of the Invention] Hereafter, the example of this invention is explained to a detail with reference to a drawing. Drawing 1 is the expanded sectional view of the part in which the metal obturation plate 7 obturates opening of the cell case of the alkaline battery of this invention, and it is stuck so that the wrap heat shrink member 8 may cover the periphery section of a gasket 6, and the opening end face of a case 1 for a cell case at a duplex.

[0009] Drawing 2 is drawing explaining the example which covered the heat shrink member of one sheet to the duplex on the outside of a cell case. The heat shrink label 8 is wound around the cell case 1 at the duplex. although not illustrated here -- the vertical edge of a heat shrink label -- said -- it carried out -- as -- a heat shrink -- the periphery section and the opening end face of a lock out side of a case 1 -- a wrap -- it has stuck like. Drawing 3 is that with which two heat shrink labels 8 are wound around one layer, and only the part of a joint lapped, and shows the drawing of longitudinal section (a) and cross-sectional view (b). After drawing 4 rolls one heat shrink label, it shows the example which carried out sheathing further with heat-shrinkable tubing, and shows the drawing of longitudinal section (a) and cross-sectional view (b).

[0010] Thus, since the impact which the cell covered with the heat shrink member by the duplex joined from the outside is parried by gap of sheathing of a duplex, an inside label is protected and friction under migration can also maintain the effectiveness as an insulating member. moreover, even when the breakage on the piece in which the tube and the label separated with the coiled spring-like terminal by the side of an instrument etc. on the occasion of the cell receipts and payments to a cell activity instrument arise, by carry out sheathing to the duplex, a load be ease, an inside label be protect by the outside label and the external short circuit between forward negative electrodes do not produce it like before with it.

[0011]

[Effect of the Invention] Since it is hard to damage the heat shrink nature member by which sheathing is carried out to the alkaline battery according to this invention as explained above, the various problems by sheathing being damaged like before, for example, the external short circuit between forward negative electrodes etc., can be prevented, and the dependability of a cell can be secured.

[Translation done.]